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# USSR Report

HUMAN RESOURCES

(FOUO 3/80)



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USSR REPORT  
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LABOR

CHANGE IN LABOR, EFFECTIVENESS OF LABOR UTILIZATION

Moscow VOPROSY EKONOMIKI in Russian No 3, Mar 80 pp 62-71

[Article by G. Vechkanov and P. Pavlov, Leningrad]

[Text] In the last few years, much attention has been given to the change in labor in the economic literature. However, the question as a whole has not been studied sufficiently and remains debatable. The differences of opinion pertain not only to different aspects of the law of change in labor--content, forms of manifestation, genesis, etc. A number of scientists believe that it is incompatible with the law of separation of labor,<sup>1</sup> others relate it to personnel turnover,<sup>2</sup> some economists refer it to technological laws,<sup>3</sup> etc.

K. Marx writes, with reference to the causes generating the effect of the economic law of change in labor and disclosing its content: "Modern industry never considers or interprets the existing form of the production process as the final one. For this reason, its technical basis is revolutionary, while all former methods of production had an essentially conservative basis. It is constantly making changes in the technical basis of production by means of introducing machines, chemical processes and other methods, and at the same time it makes changes in the functions of workers and social combinations of the labor process. Thereby, it revolutionizes just as constantly the separation of labor within society and continuously transfers large amounts of capital and many workers from one industrial sector to another. For this reason, the nature of a major industry determines the change in labor, movement of functions and comprehensive mobility of workers."<sup>4</sup>

Commenting on the spontaneous nature of effect of the law of change in labor in a capitalistic society, and the persistence with which this law paves its way, in spite of all the obstacles created by capitalism itself, K. Marx stresses: "But if the change in labor is presently paving its way only as an insurmountable natural law and with the blind destructive force of a natural law, the very largest industry makes it a question of life and death, through its accidents, to recognize

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the change in labor, and therefore as great as possible versatility of workers, the universal law of social production, for the normal implementation of which relations must be adjusted."<sup>5</sup>

Describing the conditions under which a change in labor can occur without obstruction and assessing the real purpose of the law of change in labor, K. Marx observes: "It (change in labor--G. V., P. P.) formulates the objective, as a question of life and death, of replacing the monstrosity of the unfortunate reserve worker population, which is kept in reserve for the changing demands of capitalism for exploitation, with absolute fitness of man for the changing demands for labor, to replace the partial worker, the simple bearer of a certain partial social function, with a comprehensively developed individual, for whom various social functions are merely changing modes of vital functions."<sup>6</sup>

According to the theses of K. Marx quoted, the law of change in labor emerges as the logical consequence of upheavals in the material and technical base of production, expressing the cause and effect relations between changes in means of labor and technology of production, on the one hand, and the content of labor, on the other. The law of change in labor consists of the need for a worker to change from one occupation to another, to practice several professions, under the influence of technological progress, to change labor functions within the framework of a given occupation, i.e., to assure the "absolute fitness" of both the partial and aggregate worker for the changing labor demands.

The effects of the law of change in labor are reflected in the changes in specific labor directly in the area of physical production in the course of creating a consumer value. And the change in labor should not be interpreted only as a change from one type of specific labor to another for a worker, i.e., a change in profession or specialty. Of course, the law of change in labor does not rule out, but implies such a form of movement of labor functions. However, along with this, there may also be a change in labor within a profession (specialty) by means of expansion of the range of work performed or more in-depth work. Moreover, labor functions and operations may be either simplified or, on the contrary, more complicated. The latter is reflected, in particular, by the increase in share of intellectual (usually creative, rather than mechanical) elements in the work process. This circumstance, along with others, makes it necessary to constantly advance the qualifications of workers, and this is being done in the USSR on a scale that has no precedent in worldwide practice.<sup>7</sup>

Change in labor as a political and economic category of socialism, reflects the relations that are formed in social production in a planned manner, between society, in a work team or between individual workers in connection with changes in qualitative and quantitative combinations of work functions due to scientific and technological progress, as well as the demands for economic development.

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The quantitative determination of the law of change in labor is expressed by the number of workers whose work functions changed as a result of obsolescence of former ones, appearance of new ones, combining existing occupations, modifying the content and nature of labor in former occupations, rather than overall number of workers who changed, for some reason or other, the area of application of their labor or residence.

There is also a profound social meaning to the law of change in labor under socialism. A simple worker, the bearer of a certain partial labor function, is replaced by a comprehensively developed individual, for whom various social functions are in essence changing modes of vital function. Thus, the change in labor is the condition and, at the same time, basis in a certain sense of comprehensive development of the personality. Application of the law of change in labor should result in improved health and longevity of man. It was indicated at the 25th CPSU Congress: "There is no social objective that is more important than concern about the health of the Soviet people." Not only the duration, but effectiveness and quality of labor depend largely on the physical condition of the worker. We must agree with the suggestion that it is high time to define by law the maximum term of work in industries where working conditions are deleterious, while workers engaged in such occupations should be afforded prompt training in others. Consequently, the law of change in labor also emerges as a factor in safeguarding the health of the working people.

From the foregoing we detect a direct correlation between the universal law of change in labor and the main economic law of a communistic system. It must be stressed that there are inherent basic differences between the socioeconomic nature and effect of the law of change in labor under capitalism and the communistic method of production. Capitalism, by eradicating the extraeconomic barriers to a change in labor, itself creates economic and social obstacles restricting the effect of the law of change in labor. Capitalistic ownership, the main economic law, is the chief obstacle that holds back versatility of workers and change in labor, because "variability" of labor is not determined by the demands of production, but those of exploiting capitalism. For this reason, under capitalism the change in labor encounters obstacles everywhere.

It is a different matter in a socialist society, where public ownership, the main economic law, offer wide latitude for action of the law of change in labor. Providing for "... total well-being and free comprehensive development of *all* members of society"<sup>8</sup> is the decisive goal, the moving interest and ultimate result of socialist production.

The most diverse opinions are expounded in the economic literature concerning the content of the law of change in labor. Some economists equate change in labor with sectorial, occupational-qualification and territorial movement of workers.<sup>9</sup> In our opinion, it is difficult to concur

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with such a view. The movement of the work force and change in labor are not identical processes (or concepts). The former is a broader and more diversified phenomenon; the latter is a component, an element of the former. Movement of the work force refers to any displacement of workers, regardless of causes; change in labor refers to a change in work functions, both related and unrelated to the area of application of labor. To consider all forms of labor force movement as a change in labor would apparently be tantamount to grouping processes differing in nature according to an external parameter, i.e., movement.

In a number of workers, there is excessively broad interpretation of the law of change in labor. For example, D. Kaydalov and Ye. Suimenko believe that "change in labor ... includes alternation of productive and unproductive labor, change in production, spiritual and social functions, i.e., it has the quality of universality (in the sense of covering all areas of industrious and social endeavor)."<sup>10</sup>

Extension of the effect of the law of change in labor to all areas of human endeavor distorts the content and artificially expands the functional boundaries of this law, depriving it of a material basis. The proponents of this conception believe that the law of change in labor is omnipresent: it exists in "ethnic groups," in "trials by fellows," in "unpaid work days," etc.

The area of application of the law of change in labor is public production, beyond which it does not exist, since it functions because of a social form of interaction between personal and physical factors of productive forces. A study of the law of change in labor makes it possible to single out of the overall mobility of the working population the part that is determined by changes in productive forces under the influence of scientific and technological progress, and on this basis to control more successfully excessive movement of the work force. When this is done, it will be possible to make wiser use of aggregate labor and, at the same time, accelerate growth of productivity of labor, public production and public well-being.

In the light of the decree issued by the CC CPSU and USSR Council of Ministers, "On Improved Planning and Intensified Influence of the Economic Mechanism on Increasing the Effectiveness of Production and Improving the Quality of Work," it is an important task to develop the ways and means of making planned use of the effects of the law of change in labor in economic construction.

It is extremely important to make deliberate use of the action of the law of change in labor at this stage of developed socialism. Complex mechanization and automation of production processes, development and introduction of automated control systems result in a relative and, in a number of cases, absolute reduction in number of workers. In other



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words, the technical structure of socialist production is growing. According to our estimates, it increased by more than 3 times in the national economy of the USSR in 1978, as compared to 1959. Radical changes are also occurring in the aggregate work force of society: mean level of education and qualifications is growing, intellectual elements of the work process are increasing, and there is an increase in share of specialists among all those employed in the USSR. Thus, a cardinal transformation is taking place in both factors of productive forces, and it is manifested by a change in proportions of means of production to work force, in favor of the former. This intensifies the effect of the law of change in labor, comprehensively expanding its functional boundaries, as well as intensifying the diversity of forms of manifestation.

Appearance and development of the law of change in labor can be comprehended, in our opinion, through a close correlation with the laws of population growth. As we know, processes of change in the labor of people are mediated, in particular, by natural movement of the population.

The law of change in labor is reflected in the results of censuses. The preliminary results of the 1979 All-Union census indicate that there were appreciable changes in movement of population in the 1970-1979 period between censuses. The general feature of these changes is slowing down of population growth in the USSR, both in general and urban population, and faster decline in absolute size of rural population. We observe relatively intensive redistribution of the population in cities and rural areas, in favor of the former. The number of inhabitants of large cities is growing significantly. At the present time, every fifth inhabitant of the USSR and every third urban inhabitant live in cities with more than half a million population. As a rule, population growth in large cities is attributable to migration, which leads, not infrequently (especially in the case of unorganized form of migration), to forced change of occupation. There is also a change in correlations between population size of different parts of the USSR. The share of RSFSR, the Ukraine and Belorussia in relation to overall population of our country decreased by 2% in 1970-1979, while that of Central Asia, on the contrary, increased by 1.5%, the figure being 1% for Uzbek SSR.<sup>11</sup>

Thus, the changes in correlation between urban and rural population size, between the population of cities of different sizes and between economic regions referable to the part thereof caused by scientific and technological progress, are an expression of the increasing effects of the law of change in labor.

The law of change in labor reflects more and more fully the progressive trends in development of the main productive force of socialist society

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at this stage of mature socialism. With continued development of scientific and technological progress, there will be an increase in diversity of forms of manifestation of the effects of the law of change in labor. At the present time, we can mention the following main forms of its manifestation: obsolescence of old professions (specialties) and appearance of new ones; combining professions (specialties); appearance of broad professions (specialties); modification of work functions within a profession (specialty).

Development of all these forms of change in labor is determined by the technical state of the production basis and its public form. Automation of production causes profound and radical changes in the content and nature of labor. As of 1 January 1980, the number of mechanized flow and automatic lines in USSR industry constituted 167,000. Obsolete types of machinery are constantly being removed from industry, and new types of machines, equipment, apparatus and instruments are being developed.<sup>12</sup> Increasing use is being made of industrial robots. Vast experience has been accumulated in their use at the Kirov Plant, LOMO [Leningrad Optics and Mechanics Society], Elektrosila and other enterprises in Leningrad, where robots have replaced workers in occupations involving heavy manual labor. In 1976-1978, 1.3 million people have been relieved of heavy manual labor in the nation as a whole. As a result, a change has occurred in the correlation between number of workers engaged in mechanized and manual labor, and intellectual functions are acquiring increasing significance in the work process.<sup>13</sup> All this provides objective conditions for operation of the law of change in labor in the form of extinction of old occupations and appearance of new ones. In the future, this form of change in labor will become even more intensive, and this will be aided by implementation of a goal-oriented [special purpose] complex program for the drastic reduction of heavy manual labor. The planning procedures presently being adopted will act in the same direction. Assignments are being defined for associations and enterprises to reduce manual labor. And workers who were previously engaged in manual labor will have to acquire a new occupation. The absolute reduction in workers engaged in a specific form of labor is linked with this form of change in labor. An occupation as such will not disappear, but the number of workers in this profession will decrease significantly under the influence of scientific and technological progress; and those who will be relieved of prior jobs will acquire a new occupation.<sup>14</sup> This phenomenon can be arbitrarily called "partial" disappearance of occupations.

Along with differentiation, there is a persistent trend toward increased integration of work functions in the labor process. It is manifested essentially by taking on more than one job and appearance of broader occupations. Both variants of integration of work functions and, at the same time, forms of manifestation of the law of change in labor are attributable to the objective need to develop public production. However, holding two jobs and appearance of new broader professions are not

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limited to the concerns of production. The social aspect, which refers to formation of a comprehensively developed personality, is equally important.

It must be noted that differentiation of labor is not infrequently set against integration of labor. On the basis of the principles of formal logic, differentiation and integration of labor are opposites, since they express separation and combination of specific forms of labor. However, differentiation and integration of labor are two forms of the same phenomenon, separation of labor. Universalization and specialization of human endeavor are not in conflict [opposed] with one another, but supplement one another. Integration of labor is not a mechanical combination of work functions referable to different or related occupations (specialties), but a new formation that appeared as the logical need for development of public production.

Integration of labor is a new phase of separation of labor at a higher level of development of productive forces of society.

Differentiation of work functions, which is, of course, an objective and progressive phenomenon, also has economic, physiological and social boundaries, beyond which further separation of labor leads to negative consequences since, for example, narrow specialization usually impoverishes the content of labor, renders it monotonous and uninteresting, and does not aid in comprehensive development of the personality. Integration of labor, on the contrary, enriches the content and nature of work functions, creating an objective foundation for advancing a worker's qualifications. As a result, the work becomes more diversified and meaningful. Moreover, integration of work functions is one of the factors in releasing the work force.

Dual occupations have the greatest significance in the team form of organization of labor, particularly in complex (consisting of workers in different occupations) production brigades. This form of manifestation of the law of change in labor, which is based on the principle of interchangeability and friendly mutual aid, permits more uniform distribution of work among all members of a brigade, more efficient utilization of work time, achievement of better end results and better quality of work. The experience of a number of progressive enterprises of our country, including the Kaluga Turbine Plant, AvtoVAZ [Venyukovskiy Motor Vehicle Fittings Plant?] and others, has shown that there are considerable advantages to the brigade form of organization and incentives, based on remuneration according to end results and collective (rather than individual) piece-work, i.e., performance of work according to the same work order. In view of the economic and social advantages of the brigade form, the CC CPSU and USSR Council of Ministers indicated, in the decree "On improved planning and intensification of influence of the economic mechanism on upgrading the effectiveness of production and

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quality of work," that this form should become the chief one under the 11th Five-Year Plan. The physical [material] conditions are also being provided for broad development of combined occupations. Associations and enterprises have been given the right to pay up to 50% over and above the scheduled wages of workers for being engaged in several occupations, from the savings made in the wage fund, in relation to the established standard.

There is not only economical, but social importance to combined occupations. They aid in growth of qualifications, cultural and engineering sophistication of workers, eliminate professional restrictions, and are instrumental in training "*comprehensively developed and comprehensively trained people, people who can do everything.*"<sup>15</sup>

The optimum variants of dual occupations that have been established in practice should be taken into fuller consideration when emending programs for vocational and technical schools in order to provide for "development of professional education with a change to polytechnical education."<sup>16</sup> We refer to the training of personnel in broad occupations.

The change in labor depends on the quality of the work force, its versatility and absolute fitness for work. The more comprehensively a worker is trained, the more successful is the change in labor. Hence we have the important question of correlation between the law of change in labor and the process of work force training. Personnel training, in turn, is determined by the content and dynamics of labor. This means that the an adequate professionally qualified composition of workers should conform to the content and nature of labor.

This level of development of productive forces and the prevailing form of industrial relations correspond to the content and nature of labor. And each method of production has its own inherent, special type of worker. He appears and develops along with the socioeconomic system. A worker's typical features are disclosed the most fully and distinctly at the stage when society reaches its maturity. It can be maintained that a worker of the socialist type has emerged in the USSR. Such features as a new attitude toward work, high cultural, engineering and general educational level, friendly collaboration and mutual aid in the work process, creative and highly conscientious work, etc., are organically inherent in him.

One of the manifestations of the new type of worker in a socialist society is, in our opinion, the process of approximation of the content and nature of work done by blue-collar workers, engineering and technical personnel. [ITR]. This is expressed by intellectualization of work functions. The increased complexity of production and labor require technical proficiency of workers. An increasing number of new types of machines, equipment, apparatus, etc., is being developed, servicing of which requires that a

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worker have, at the very least, specialized secondary education."<sup>18</sup> The work of such employees organically combines physical and mental functions, whereas they differ little from technicians and engineers with regard to education, sophistication and qualifications. Approximation of the content and nature of work done by blue-collar workers and IRT also emerges as a most important feature of the socialist life style.<sup>18</sup>

The worker in a socialist society is not only the main productive force, the creator of national wealth, but an active participant in management of production. As a result, the situation of a worker in a socialist society is basically different from that of a worker in the capitalistic world.

In a fully developed socialist society, the labor of a worker is acquiring control functions more and more. The content and nature of control of the production process are undergoing constant development, as a result of which there is substantial modification of the structure of work functions. At the same time, the "technical equipment" [hardware?] for control, which is implemented by means of increasingly refined apparatus, instruments and other devices, is also growing. This requires profound technical knowledge of a worker, which ultimately leads to intensification of the action of the law of change in labor.

It must be noted that not only work, but social functions are changing for the worker in socialist industry. He is participating more and more actively in management of the national economy. For this reason, it would be wrong, for example, to reduce the function of education solely to reproduction of the work force, i.e., to isolate it within the strictly economic aspect. A unilateral, narrowly utilitarian approach to assessment of the role and place of education under socialism underestimates the social aspect. For example, higher education of a member of a socialist society is a mandatory prerequisite, not only for complicated and highly productive work, but as evidence of his comprehensively developed personality, and indicator of the wealth of his spiritual world.

Under fully developed socialism, there are greater possibilities for changing the area of work, there is intensification and greater diversity of forms of manifestation of the law of change in labor. All this requires in-depth analysis of all aspects of operation of this law in order to rule out or reduce to a minimum spontaneous elements in its action and, on this basis, to provide for effective functioning of the work force.

As a rule, there are two elements in the external expression of the law of change in labor. The first refers to release of a worker from previously performed work functions and the second is to involve the worker in a new or modified work process.

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Release of work force is a rather multilevel phenomenon. Scientific and technological progress is its physical basis, and as a result of this progress there is an increase in productivity of labor, change in professional qualification structure of the aggregate work force. A distinction is made between actual release of work force, which refers to elimination of work places, and arbitrary, which is characterized by saving of human labor (expressed by the number of workers) as a result of increased productivity thereof.

There are numerous complex correlations between the law of change in labor and release of workers. In the first place, the change in labor is directly related to actual release of work force. In the second place, not every absolute reduction of workers involved in a given sector of production causes a change in labor, since the latter does not refer to a simple change in place of application of labor, but movement of work functions. In the third place, there can be a change in labor even without release of workers, since a modification of work functions can be made within the framework of a prior occupation and without change in place of application of labor.

The demand for additional work force is reduced as a result of arbitrary release. For example, there was arbitrary release of 141,400 people<sup>19</sup> in the industry of Leningrad and Leningrad Oblast in 1971-1975, whereas it decreased by almost 67,000<sup>20</sup> in 3 years of the 10th Five-Year Plan, as compared to the planned number of individuals employed in the national economy. This, of course, attenuated somewhat the acuity of the problem of manpower resources.

A significant acceleration of the process of releasing the work force occurs with introduction of the Shchekinskiy method, which was used and further developed at the Leningrad enterprises also. Thus, at the Pikalevo Glinozem production association, which was among the first to change to work by the Shchekinskiy method, 1656 people were released in the years of their experiment, including 1116 under the 9th Five-Year Plan; 14.1% of the workers were released in 1971-1975 at the Leningrad Laminated Plastics Plant, 12.1% at the Lenpishchekombinat [Leningrad Food Combine], 11.2% at the Vereteno factory and 9.7% of total workers at Lenbytkhim [Leningrad Household Chemistry Plant]. The savings realized at these enterprises referable to wages because of release of personnel constituted the following figures as the average per month: 20,200, 40,400, 66,200, 24,800 and 37,200 rubles, respectively. The mean bonus over and about the monthly wages constituted 17 to 20 rubles per worker at the above enterprises, and it was taken from these savings. As a result of the measures implemented, for example, at the Leningrad Laminated Plastics Plant, productivity of labor increased by 91.5% in 1975, as compared to 1970, volume of production increased by 52.3% versus 69.1 and 31.5% according to plan.

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Analysis of the use of the Shchekinskiy method in enterprises of Leningrad and Leningrad Oblast revealed that the saving in human ["live"] labor and release of work force occurred chiefly as a result of combining occupations (positions) and expansion of service zones. As a result, the workers carry a larger load and thereby increase the intensity of labor to the socially normal level. The correlation between the above factors and share of each of them in the overall released work force are determined by the nature of production, composition of workers (piece workers, time rate workers), level and rate of growth of technical equipment of enterprises, etc.

At the present time, there is prevalence of intraplant release of workers at Leningrad enterprises, and this enables the enterprises to meet the additional demand for personnel as a result of change in structure and technology of production, etc. However, in the old industrial centers, in particular in Leningrad, it is imperative for extraplant release of workers, which is one of the chief sources of supply of work force to the national economy, to acquire increasing significance.

Analysis of the results of introduction of the Shchekinskiy method shows that the structure of released workers is an important question. It is important, first of all, to reduce manual labor, which usually prevails among ancillary personnel. A drastic reduction of this group in the work force is economically desirable, it costs society much less than release of main workers and it is of greater social significance, since the reduction involves those engaged mainly in unskilled labor. At the present time, this process is taking place intensively at the Lenbytkhim and Myasokombinat [Meat Packing Combine] associations, where the share of ancillary workers among all those released in the 9th Five-Year Plan constituted 93 and 81%, respectively. A slow process of release of ITR is typical of several enterprises in Leningrad. For example, at Myasokombinat, the share of ITR among all released personnel under the 9th Five-Year Plan did not reach 1%, there being no ITR at all at the Machine Tool Manufacturing Association imeni Ya. M. Sverdlov and Lempishchekombinat.

The socialist society is concerned with having the work force immediately involved in public production as it is released. Of course, this process requires some effort with regard to planned retraining and redistribution of workers. Yet the time within which employment is arranged is reduced by an average of 10 days with the assistance of the office for employment [vocational guidance?] and public information. Thus, in 1977 almost 2 million people obtained employment in the USSR through the urban offices. Planned regulation of redistribution of the work force through the employment service makes it possible to better utilize the labor potential of society and minimize excessive changes in occupations (specialties) with change in work place.

The planned utilization of the action of the law of change in labor implies the creation of a well-organized and well-operating mechanism for

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the training, distribution, retraining and redistribution of the work force. This is particularly important at the present time, since the scale of personnel movement continues to grow in the USSR. Under such conditions, to ignore the action of the law of change in labor would cause negative consequences, since the change in labor would contain spontaneous elements and turn out to be a poorly controlled process. Thus, some new specialties emerged in the field of optical and mechanical instrument making: solid body physics, telemechanics, microelectronics, photo-electronics, etc., while the demand for workers in relevant occupations is not always met. In Leningrad, for example, there is a shortage of personnel specializing in "assembly and operation of metal-working lathes [machines]," yet the educational institutions of that city do not offer such training. The need for workers in the specialty of "operation and adjustment of machines [lathes] with a digital programming device" is still not being met satisfactorily. Under the current five-year plan, thousands of lathes with a digital programmer will be delivered to industrial enterprises of Leningrad, and if appropriate steps are not taken promptly to train the required specialists there will be some serious difficulties in servicing this equipment.

A change in occupation (specialty) is often unrelated to the effects of the law of change in labor, and is attributable to a number of other causes. They include, for example, dissatisfaction with the occupation, inconsistency between the psychophysiological traits of the worker and the content and nature of his work, flaw in the system of remuneration, etc. In this regard, the question arises of improving vocational guidance of young people, particularly those attending general education schools.

Deliberate utilization of the law of change in labor requires determination of the following with a high degree of scientific accuracy on all levels: how many and which specific workers (according to occupation, skills, etc.) will be released, undergo retraining and redistribution; which professions or positions will disappear, reappear and become integrated; the place, time, forms, directions, nature, etc., of professional training, retraining and movement of workers.

In other words, we need an orderly system of control of release, retraining and redistribution of workers. Socialism has at its disposal all that is necessary to successfully control these processes in a knowledgeable manner.

## FOOTNOTES

1. See, for example: V. P. Korniyenko, "Social Separation of Labor During the Period of Transition Toward Communism," Ekonomizdat, 1963, p 73.

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2. See, for example: E. V. Strukov, "The Socialist Life Style. Theoretical and Ideological Training Problems," Izdatel'stvo Mysl', 1977, p 150.
3. See, for example: "Socioeconomic Problems of Work Force Under Socialism (Summaries of Papers)," Izdatel'stvo Leningradskogo universiteta [Leningrad University], 1972, p 458.
4. K. Marx and F. Engels, "Soch." [Works], Vol 23, pp 497-498.
5. Ibid, pp 498-499.
6. Ibid, Vol 23, p 499.
7. In 1977 alone, 29.6 million people underwent advanced training in the USSR.
8. V. I. Lenin, "Complete Works," Vol 6, p 232.
9. See, for example: "Socioeconomic Problems of Work Force Under Socialism (Summaries of Papers)," pp 126-127.
10. D. P. Kaydalov and Ye. I. Suimenko, "Pressing Problems of Sociology of Labor," Izd-vo Ekonomika, 1974, p 159.
11. Estimated according to "Results of All-Union 1970 Census," Vol 1, Izd-vo Statistika, 1972, pp 10-21; "Preliminary Results of 1979 All-Union Census" (PRAVDA, 22 Apr 79).
12. In 1975-1979 alone, more than 9000 obsolete machines, equipment, apparatus, instruments and items were removed from production; in 1971-1979, more than 35,000 samples of new types of machines, equipment, apparatus and instruments were developed.
13. As compared to 1927, there has been a 14-fold increase in number of individuals engaged primarily in mental labor in the national economy of the USSR in 1977.
14. In 1978 alone, 6.4 million workers were trained in new occupations and specialties.
15. V. I. Lenin, "Complete Works," Vol 41, p 33.
16. Ibid, Vol 38, p 409.
17. In 1964-1973, the share of workers with higher and secondary technical education in the overall number of workers increased by 4.7 times (see N. V. Markov, "Socialist Labor and Its Future. Some Problems of Development of Labor During the Scientific and Technological Revolution," Politizdat, 1976, p 30).

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18. Ye. Kapustin, corresponding member of the USSR Academy of Sciences, has described the process of approximation of the content and nature of labor of blue-collar workers and ITR as the most important feature of the socialist life style (see VOPROSY EKONOMIKI [Problems of Economics], No 6, 1975, pp 38-47).
19. See: "National Economy of Leningrad and Leningrad Oblast Over a Period of 60 Years," collection of articles on statistics, Lenizdat, 1977, pp 25, 127..
20. See: LENINGRADSKAYA PRAVDA, 20 Jan 1979.

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LABOR

ROLE OF WOMEN'S LABOR IN PRODUCTION DISCUSSED

Moscow VOPROSY EKONOMIKI in Russian No 2, Feb 80 pp 15-23

[Article by N. Shishkan (Kishinev): "Female Labor in Public Production"]

[Text] In this stage of communist construction, what with the sharp increase in the intensification of public production and the acceleration of the rates of scientific and technical progress, as was emphasized at the 25th CPSU Congress, special importance is attached to questions of improving the nature and content of labor, its organization, its efficient utilization in order to increase the effectiveness of public production, the improvement of social relations and all-around development of the individual. It becomes important to reveal the specific features of the labor of each sex and age group of the able-bodied population to determine its position in the system of public production. This is conditioned by the fact that in public production, as it develops, "instead of artificially engendered differences, natural differences of age and sex begin to prevail among home workers."<sup>1</sup>

An indispensable part of public labor is the labor of women, whose role and significance in communist construction is constantly increasing. The proportion of women among workers and employees amounts to 51 percent, and kolkhoz workers--almost half (49 percent) of the average annual number. Deep qualitative changes have taken place in the makeup of female labor resources. The levels of education of men and women have almost equalized. The proportion of women among workers in mental labor has become higher (59 percent) than the proportion of men (41 percent). Experience in utilizing the labor of women in our country is broadly publicized in print both at home and abroad.

The increased role of women in public production creates a greater need for planned control of the processes of the formation, distribution and utilization of female labor, taking into account its specific features which are conditioned by the natural peculiarities of female labor force and the historical conditions of the vital activity of the sexes.

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The labor process, regardless of the public form of production, is a process of consumption of labor force and reflects man's attitude both toward the object he is processing and toward his own labor capabilities. The latter are different in men and women. First, the generative function performed by women limits the possibilities utilizing their labor force in space and in time; second, because of the natural peculiarities of the female organism, the physical capabilities related to the development of large muscle force are less in women and those related to the development of the small muscle force are higher than in men; third, the existence of a direct connection between man's physical capabilities and his specific activity<sup>2</sup> and, in particular, activity related to the production of implements of labor, has historically predetermined differences in the levels of development of the mental capabilities of women. But if the differences in the physical capabilities are naturally conditioned, on the level of mental capabilities there have been unequal conditions for the vital activity of the two sexes. As the experience of economically developed countries, above all, socialist countries, shows, as they equalize the differences in the development of the mental capabilities are gradually erased. Therefore one understands female labor to be that publicly necessary labor in its concrete manifestation which a woman can fulfill, taking into account the specific features of her labor force that are conditioned by the physical and physiological peculiarities of the organism.

One should distinguish the concept "female labor" from the concept "labor of women," that is, the labor which women actually perform. The material and socio-economic peculiarities of the reproduction of the female labor force has historically conditioned a disparity between the theoretical understanding of female labor and its practical realization. This has been reflected, on the one hand, in the extreme limitation of the application of the female labor force in jobs which are physically relatively easy and in jobs that require mental capabilities, and, on the other, in the extreme expansion of the sphere of the application of this labor in heavy and harmful jobs.

As a socio-economic category, female labor is conditioned by the public form of production in which the female labor force functions, revealing itself as actually existing with the characteristic features inherent in it, the relationships for participation in public production and a certain position in the system of division of labor. Since the latter is a "coexistent labor" which combines various kinds of specific labor, which is a means for the existence of social labor in general, a means for the manifestation of the organic interconnection between natural peculiarities of the individual and its concrete activity, a means of influence of the latter on social organization of labor<sup>3</sup> and on the form of property,<sup>4</sup> so the differences in the peculiarities of men and women with respect to labor predetermines differences not only in their concrete activity, but also in its results and in the relationships concerning participation in public production and the public form of organization of their labor. When labor itself is divided into two spheres (public production and homemaking),

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female labor become a synonym for the latter and the kinds of activities that are related to it, and male labor is synonymous with public production where all kinds of labor, regardless of the concrete forms of their manifestation, are forms of manifestation of male labor as public labor.

The further development of public labor has been, in essence, the development of male labor in the diverse concrete forms of its manifestation and the sphere of application of female labor has been sharply limited. Female home labor (and the concrete kinds associated with it) in non-embodied, lacking in content, primarily manual, less creative and less effective than the labor of men. Relations with private ownership of the means of production have reinforced this division of labor.

The process of eliminating the differences in the conditions for the reproduction of the female labor force, the elimination of the division of branches and occupations into male and female ones, and the dying out of unequal relations between men and women with respect to their participation in public production are related to the development of productive forces on the basis of the introduction of machines.

On the one hand, the introduction of machines leads to a change in social relations whose economic basis has been small (family) production, and to an acceleration of the separation of the direct producers from the means of production,<sup>5</sup> it undermines the economic bases of the predominance of the majority of men and the subordination of women, depriving them of a means of existence and strengthening the dependency of the satisfaction of the needs of the family on the participation of women in public production, which is historically related to the establishment of the capitalist method of production. On the other hand, it sharply increases the demand for labor force and simultaneously creates conditions for the application of female labor force. Machines increase the volume of production, deepen the division of labor and change the relationship between the significance of muscular and non-muscular force in favor of the latter; they increase the significance of the small muscle system and mental capabilities (whose development does not depend on the natural peculiarities of the female labor force); they create conditions for increasing the productivity of public labor, for transforming household work into the public sphere of service, for decreasing the amount of working and increasing the amount of free time, for equalizing wages and for changing over to an intensive type of reproduction not only of material goods, but also of people (in particular, reducing the birth rate to the optimally necessary level).

The productive force of female labor has increased, which has been manifested in the higher level of education of women and in their acquisition of skills for participation in public labor, especially in branches where the advantages of the small muscle system are of decisive significance (the ability to maintain high rates of work throughout all the working time), in the increased results of public labor because of the development of branches of the of services (the main sphere of application of fe-

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male labor), in the higher degree of satisfaction with labor as a means of self-expression, and in the equalization of the wage levels.

In the world economy, with the introduction of machines into production there was a clear tendency to change over from homemaking to labor in public production, to an absolute and relative increase in the amount of employment of women in public production. While at the beginning of this century the proportion of women employed in the world economy amounted to one-fifth and in the 1940's--one-fourth, at the present time it is more than one-third. The proportion of women among workers in the national economy in socialist countries of Europe amounts to 42.2 percent, in Western Europe--34.6 percent and in North America--35 percent. In the future up to the year 2000, according to data from the UN, there is to be a further increase in the employment of women at higher rates than men (36 and 31, respectively).

There has also been a clearly manifested tendency toward a change in the content of female labor as a result of transferring women from agricultural labor to industrial labor, to labor in branches of the nonproductive sphere and the sphere of services, from manual labor to mechanized labor, from unskilled labor to skilled labor, and from physical labor to labor that organically combines mental and physical functions and also to mental labor.

In the structure of female employment changes are taking place that are similar to the changes in public labor: a reduction in the amount of employment in agriculture, an increase or stabilization in industry and an increase in the sphere of services (see Table 1). There has been an essential change in the nature and content of female labor. This has been manifested primarily in the increased proportion of women among workers who are employed primarily in mental labor and also the proportion of women in new occupational groups (machine operators, other operators, equipment operators and so forth) and their increased proportion among workers of mechanized labor.

Table 1. Distribution of Economically Active Female Population in Branches of National Economy \*

	European economically developed socialist countries		European Economically developed capitalist countries		USSR		USA	
	1950	1970	1950	1970	1965	1974	1964	1975
Agriculture	63.3	30.9	26.1	9.3	28.1	20.3	3.1	1.7
Industry	16.9	29.9	29.9	30.4	34.1	33.8	24.2	22.5
Services	19.8	39.2	44.6	60.3	37.0	44.8	71.3	74.6
Other branches					0.8	1.1	1.4	1.2
Total:	100	100	100	100	100	100	100	100

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\*This table was compiled and calculated on the basis of classifications and data of the MOT "Year Book," 1965, pp 62, 80; 1976, pp 66, 88, 104; "Women at Work," No 1, 1977, p 5. According to MOT classifications, agriculture includes forestry and fishing; industry includes extraction, processing, electricity, gas, water supply and construction; services include branches of trade, transportation, communications, finance and personal services ("Women at Work" No 1, 1977, p 7).

In our country the proportion of women among workers in mechanized labor in industry is fairly high--47 percent. There has also been a change in the content of traditionally female occupations. While even at the beginning of the 1950's in the majority of occupational groups in which female prevailed the work was done by hand, now there is a considerable amount of mechanized work. The level of mechanization in 1975 was: for knitters--70.4 percent, seamstresses--89.2, weavers--96.0 (including 60.4 percent of the work which is done on automatic looms), reeler operators--97.3 percent, and spinners--100 percent. Almost half the women employed in construction (49.5 percent) perform their work with the help of machines and mechanisms.

On the sovkhoses the process of milking cows is now 75 percent mechanized. The proportion of women among masters of machine milking who work with stationary milking machines and operators of machine milking amounted to 97 percent in 1975. More than half of the female poultry workers work on mechanized poultry farms.

There has been a marked increase in the proportion of women among workers whose labor is directly related to administration and scientific research. The proportion of women among specialists with a higher education employed in the national economy is 52 percent, including in specialties obtained in a training institution: engineers--30 percent, agronomists, zootechnicians and veterinarians--38 percent, economists--65 percent, physicians--70 percent, and pedagogues--70 percent. Women comprise 40 percent of the scientific workers.

Despite the fact that the level of economic development of the socialist countries is somewhat below the level of the economically developed capitalist countries, the rates of increase in the employment of women in public production are higher under socialism. Their proportion among those employed is considerably higher (14.4 percent) in the CEMA countries (48.2 percent) than in countries of the Common Market (33.8 percent). The difference in the nature and content of male and female labor is less and the range of development of the capabilities for labor and the possibilities for their realization are greater for women in socialist countries. This is manifested in the higher proportion of women among workers in highly skilled labor (scientific workers, physicians, economists and lawyers), in the capability of a considerable proportion of them to improve the implements and objects of labor (the proportion of women among engineers in our

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country amounts to one-third and technicians--two-fifths), in their mass participation in the control of the society and production, and in their participation in socialist competition. It should be noted that the proportion of women among engineers in the United States, England and the FRG does not exceed two percent, and in France--3.7 percent.

Under socialism the interconnections between the natural peculiarities of the individual and his concrete activity is realized in a planned way in order both to increase the efficiency of public production and in all ways to develop the personality of each member of society. The socialist state has created an entire system of guarantees and privileges for effective participation of women in public production and all-around development of the personality, which is reflected in the new USSR Constitution: "Women and men have equal rights in the USSR. The exercise of these rights is guaranteed by giving women an opportunity equal to those of men in obtaining education and occupational training, in labor, remuneration for it and advancement in work, in socio-political and cultural activity and also by special measures for protecting the labor and health of women; by the creation of conditions that make it possible for women to combine labor and motherhood; by legal protection and material and moral support of maternity and childhood, including granting paid vacations and other privileges to pregnant women and mothers, and a gradual reduction of the working time of women who have young children." (Article 35)

Our state utilizes in a planned way the achievements of science and technology in the interests of society and each of its members. "We communists," noted L. I. Brezhnev at the 25th CPSU Congress, "proceed from the idea that only under the conditions of socialism does the scientific and technical revolution acquire a true direction that corresponds to the interests of man and society."

Yet the practice of applying female labor in our country (as in economically developed countries, shows that along with the tendency towards elimination of "male" and "female" branches and occupations, in certain of them there is still predominant utilization of either female or male labor. Thus construction, transportation and forestry are branches of a low level of concentration of female labor (up to 30 percent); industry, agriculture, science, and scientific service, art--with medium concentration (from 30 to 50 percent); communications, housing and municipal services, consumer services, cooperative and public organizations--a high concentration (from 50 to 70 percent); trade, public catering, material and technical sales and services, public health, physical culture and social security, credit and state insurance--with maximum concentration (more than 70 percent). In industry there is a low level of concentration of female labor in electrical power engineering, the coal industry, the mining industry, and forest working; high--in the chemical, glass, porcelain, polygraphic and food industries; maximum--in light industry and the food industry. Even with the mechanization of production processes, the proportion of women in mechanized male occupations remains extremely low.

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Table 2. Proportion of Women in Mechanized "Male" Kinds of Labor  
(1965-1975, occupations covering all processes; in %)

Occupation	1965	1975	Deviation, Increase (+) Decrease (-)
Drillers	0.1	0.1	0
Furnace tenders	1.7	1.6	-0.1
Rolling press operators	4.1	4.5	+0.4
Timber milling workers	0.7	0.5	-0.2
Rolled metal stampers	12.7	9.0	-3.7
Gas welders, gas cutters	8.5	7.8	-0.7
Miners	0.6	0.4	-0.2
Mining assistants	0.9	0	-0.9
Metal smelters	0	0	0
Boiler machinists	20.0	30.4	+10.4
Timbermen	0	0	0
Hammer and process blacksmiths	1.3	1.6	+0.3
Drivers and assistants	37.2	42.5	+5.3
Metal trimmers, cutters and dressers	24.7	26.8	+1.9
Metal smelters	1.0	1.0	0
Tunnellers	1.2	1.2	0
Metal cutters	25.7	16.1	-9.6
Fitters in machine assembly, other assembly fitters	13.5	21.4	+9.9
Melter foremen	0	0	0
Metal machine tool operators	19.9	19.2	-0.7
Metal lathe operators	17.9	17.4	-0.5
Milling machine operators	26.5	22.6	-3.9
Electric welders	25.1	23.3	-1.8

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The proportion of men employed in mechanized "female" occupations (seamstresses, reelers, knitters, controllers, sorters, packers and so forth) have practically not changed.

Research has shown that the differences in the structure of male and female labor and in the concrete forms of their manifestation are objectively conditioned. First, the development of technology constantly deepens the division of labor which, along with a tendency toward integration of labor activity, preserves the tendency towards its differentiation. Second, the development of technology on the basis of its internal laws (increased capacities of equipment, increased speed of movement, differentiation of implements of labor) does not eliminate the significance of the natural factor in labor and conditions the need for accounting for the natural peculiarities of the female labor force when performing concrete kinds of activity which, along with the tendency toward equalization of male and female labor, retains the need for its differentiation.

There arises a need for division and cooperation of labor in terms of sex and age.

The specific features of female labor (like male labor) do not exert an influence on the scope of cooperation and do not presuppose special forms, but cooperation in labor makes it possible to arrange "combined" personnel, taking into account the physical and psychophysiological peculiarities of people and, on the basis of this, to increase the productivity of public labor. The objective need for combined application of male and female labor in this stage of development of production and in the future is conditioned by the following factors. First, the continuing significance of physical capabilities in labor for increasing its productivity. The process of partial mechanization and the changeover to comprehensive mechanization retains, on the one hand, a considerable volume of manual labor which differs from the point of view of expenditures of physical energy (light, heavy), and on the other--reduces the significance of the physical factor in labor as a source of energy (under conditions of electrification of production) and conditions the need for operations that involve pressing buttons, control with levers, servicing for the main production, and so forth. In mechanized sections there is still frequently heavy physical labor which exceeds the scientifically substantiated and maximally permissible norms for women. An analysis of the structure of the country's machinery showed that the basic position is occupied and will be occupied by kinds of equipment (metallurgical, mining, land-moving and levelling, railroad, drilling, trucks, tractors and so forth) whose production and application take place in unfavorable conditions and involve a considerable amount of physical strain. The productivity of the labor of women on heavy jobs is 15-20 percent less than that of men.

In our country there is still a certain lack of correspondence between the natural and technical content of female labor and the concrete form of its

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manifestation which is caused by objective circumstances (the need for priority development of branches of heavy industry, the disturbance of the sex and age population during the war, and so forth). The sex and age composition of the population is gradually equalizing, but the pressing need to develop branches that take into account the specific features of female labor in the regional aspect still exists. The contradiction between the need to offer women relatively light physical work and the payment for their labor is also still significant. Wages are higher for heavy labor which, when the economic law of distribution according to labor as it is in effect, serves as a stimulus for its performance, especially for women with a low level of education. Therefore it is no accident that when developing measures for releasing women from heavy jobs the socialist state devotes a great deal of attention for creation of conditions for raising the level of education and the skills of women. The decree of the CPSU Central Committee and the AUCCTU "On Additional Measures for Improving Working Conditions for Women Employed in the National Economy" (1978) envisions retaining for women: retaining continuous labor tenure if the time period between the day of release from heavy jobs or jobs with harmful working conditions and the day of entry onto a new job or training does not exceed six months; the average monthly wage at the place of the previous job at the time of training or requalification, but not for more than six months; the right to use departmental residential space and also children's preschool institutions at the place of the previous job. It emphasizes that when developing plans it is necessary to plan measures for further improving the health conditions for the labor of women. Special attention is attached to mechanization of manual work. This approach makes it possible to solve, on the one hand, the problem of offering women relative light and also sufficiently highly paid work and, on the other, to retain personnel in production and increase the efficiency of their labor. Comprehensive mechanization and especially the use of conveyors and automation of production processes in many branches leads to an increased quantity of working positions that require the expenditure of mainly small muscle force and the labor productivity in many comprehensively mechanized and automated sections of industry is no less with women than with men. As the experience of the GDR has shown, an expansion of the sphere of application of female labor force in mechanized sections of production is possible through expanding the means of minor mechanization and taking into account the requirements of ergonomics when designing technical equipment, especially agricultural equipment.

The changeover to automation of production equalizes the differences in the process of labor at the level of the branches, but creates a greater need for combined application of male and female labor at the level of the local production unit, for automation does not preclude the diversity of concrete forms of labor and does not presuppose identical conditions for it. While releasing the worker from functions from putting objects and implements of labor into motion (with considerable expenditures of physical force) and also, to a large degree, from control and implements of labor during the process of their action on the objects of labor, automation still does not release them from the functions of adjusting and tuning up the implements

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of labor when, in addition to expenditures of primarily mental efforts, significant expenditures of physical efforts are also required. Physical endurance is still important, especially in the assimilation of new regions, the earth's crust, the ocean and space. Since physical capabilities of women and men are immensely different, there remains a need to account for the physical suitability when organizing labor. Therefore, when analyzing the patterns of the development of labor as production becomes automated, K. Marx emphasized the importance of accounting for differences in sex and age when organizing labor as an automated factory.<sup>6</sup>

Second, the need for combined application of male and female labor force is conditioned by the differences in the degree of influence of sanitary and hygienic conditions on the condition of the health of men and women and on the reproduction of their capabilities for labor. Mechanization of production processes, while increasing labor productivity, does not improve its conditions. Frequently the noise and vibrations are greater and temperature and humidity conditions are disturbed. Much research conducted in our country and abroad shows that harmful aspects of production, above all, various chemical substances and industrial toxins have a negative effect on the condition of the health of women, on their reproductive functions, on the condition of the health of the newly born, and so forth.

One of the ways of reducing the volume of harmful work is to seal off technological processes. But at each moment there arise new production dangers and the need to limit female labor both in branches where primarily male labor force is used and in branches where female labor force prevails. There has been a marked increase in the number of harmful aspects in agriculture as chemicals are being used. The solution to the problem of limiting the application of female labor force here touches on the narrowness of the sphere of labor whose expansion could be expediently carried out through agro-industrial integration and efficient distribution of branches of light industry and the food industry as well as light machine building.

Third, the influence of psychophysiological qualities of the workers on labor productivity becomes stronger as the achievements of science and technology are introduced into production. K. Marx pointed out the interconnection between industry and psychology as early as the middle of the last century.<sup>7</sup> In this century technological progress is conditioned to a certain degree to a level of psychological knowledge.

The more complicated the machines and information systems become, the greater the requirements placed on the psychological qualities of the person. Planning and utilizing them now require not only technical, but also psychological information about the properties of the personality--its capacities to evaluate a situation, make a decision promptly, withstand emotional strain, and so forth.<sup>8</sup> The more these peculiarities are taken into account, the greater the productivity of labor.

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Unfortunately, there is still no special fundamental research devoted to psychophysiological and psychological differences in the sexes, which makes it impossible to reveal fully the natural peculiarities of the female labor force and scientifically determine its position in the system of public division of labor, especially in branches of the non-industrial sphere. But certain research shows that although in the majority of branches of mental activity there is a considerable similarity between the sexes, there are still differences in the types of mental capabilities. An increase in the role of collective labor (small groups) leads to an increase in its productivity, taking these peculiarities into account.

The combined application of male and female labor in the modern stage creates prerequisites for moral improvement and all-around development of the individual, which increases the need for redistribution of the male labor force in branches of the nonindustrial sphere (education, public health, trade) in order to improve the training and education of youth, to improve medical service, organization of recreation and so forth. Under the forthcoming five-year plan the effect of this tendency will increase, but there will still be a predominance of women in branches of the nonindustrial sphere because of the more favorable working conditions.

The equalization of the conditions in which the two sexes live leads to a reduction of certain psychophysiological differences in women as compared to men, for example, the courage to make a decision. On the other hand certain differences become stronger because there are greater possibilities of displaying individual inclinations, which creates conditions for selecting the corresponding kind of activity.

As a material and base is created for communism, the effect of the law of changing labor increases and people are no longer assigned to a certain kind of activity for their entire lives. The possibilities for developing and displaying mental and physical capabilities increase, but the need to limit the sphere of activity within the framework of the inclinations of the individual remains.

Further disclosure of the specific features of the labor of women, which are related to the natural peculiarities of their organism, the level of technical progress, sanitary and hygienic conditions for labor and the determination of its place in the system of combination and division of public labor, makes it necessary to improve scientific developments in this area in combination with the solutions to ecological, social, demographic, socio-psychological and other problems that require the combined efforts of economists, sociologists, labor physiologists, demographers, specialists in sanitation and hygiene, psychologists, engineers, and so forth.

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FOOTNOTES

1. K. Marx and F. Engels, "Sochineniya" [Works], Vol 23, p 431.
2. See K. Marx and F. Engels, "Soch." Vol 46, Part II, p 45..
3. Ibid., Vol 46, Part II, pp 451, 453, 454.
4. Ibid., Vol 3, p 20.
5. Describing the process of change in socio-economic relations based on small industry under the influence of machines, V. I. Lenin emphasized: ". . . Note that it is precisely under the influence of machine industry and not of 'capitalism' in general. . ." (V. I. Lenin, "Polnoye sobraniye sochineniy" [Complete Collected Works], Vol 2, p 231).
6. See K. Marks and F. Engels, "Soch.," Vol. 23, p 431.
7. K. Marx and F. Engels, "Iz rannikh proizvedeniy" [From Early Works], Politizdat, 1956, p 549.
8. See M. G. Yaroshevskiy, "Psikhologiya v XX stoletii" [Psychology in the Twentieth Century], Politizdat, 1974, p 4.

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